PDR RID Report

Originator Mike Rackley, Art Gaylord, Dick des Jardins, Milo Medin **Phone No** 286-2220
Organization 510 FOS
E Mail Address mike.rackley@gsfc.nasa.gov
Document

RID ID PDR 168
Review CSMS
Originator Ref
Priority 1

Section **Page** **Figure** **Table**

Category Name Design-CSS **Actionee** HAIS
Sub Category Interprocess communication
Subject Analysis of RPC vs sockets: Inter-process Communication (IPC)

Description of Problem or Suggestion:

What are the impacts of going though RPC versus sockets with and without security features:

What are the impacts, by feature set and performance degradation?
Need to analyze, prototype, and report to Project to validate that RPC services meet all functional and performance requirements. Include analysis of satellite delays when contingency links through domsats are utilized.

Originator's Recommendation

GSFC Response by: **GSFC Response Date**

HAIS Response by: Forman **HAIS Schedule** 2/17/95
HAIS R. E. Winston **HAIS Response Date** 2/10/95

CSS agrees that an analysis of RPCs versus Sockets is useful.
Shortly before CSMS PDR, CSS undertook performance testing comparing DCE RPCs versus UNIX sockets under WAN/LAN environments. The analysis will include:
RPC performance with/without security (via Kerberos),
RPC performance with encryption (via Kerberos), and
RPC with multi-threaded applications.
Discussions are underway with other DCE end-users who have established intercell communication over satellite links. (Currently Project Pilgrim (UMass) is using satellites to communicate with other DCE cells in Australia and Germany. We have collaborated before with Project Pilgrim and have verified some earlier DCE performance testing.)
n EP5 we expect to prototype some sample FOS and SDPS applications in order to help us evaluate the timing requirements. We also expect to continue to hold discussions on the analysis and prototyping with FOS and SDPS. Preliminary results of the performance tests will be available by CSMS CDR.
Sockets do not provide security, so we are expecting to require session-setup-establishing security and directory look-ups (CSS provided services). We are not requiring use of RPCs beyond session establishment, however if the performance requirements can be met by using RPCs, then we recommend using RPCs instead of sockets. We do not anticipate the use domsats inside the EOC, but they may be used as contingency links to communicate between the EOC and ISTs.
It should be noted that we are currently using OSF DCE version 1.0.3 from vendors. The now released Version 1.1, which should be available by mid-year from vendors, will provide performance increases.

Due to similarities between this RID and RID PDR 169, CSS recommends that these RIDs be combined.

Status **Closed** **Date Closed** **3/8/95** **Sponsor** **Broder**

****** **Attachment if any** ******